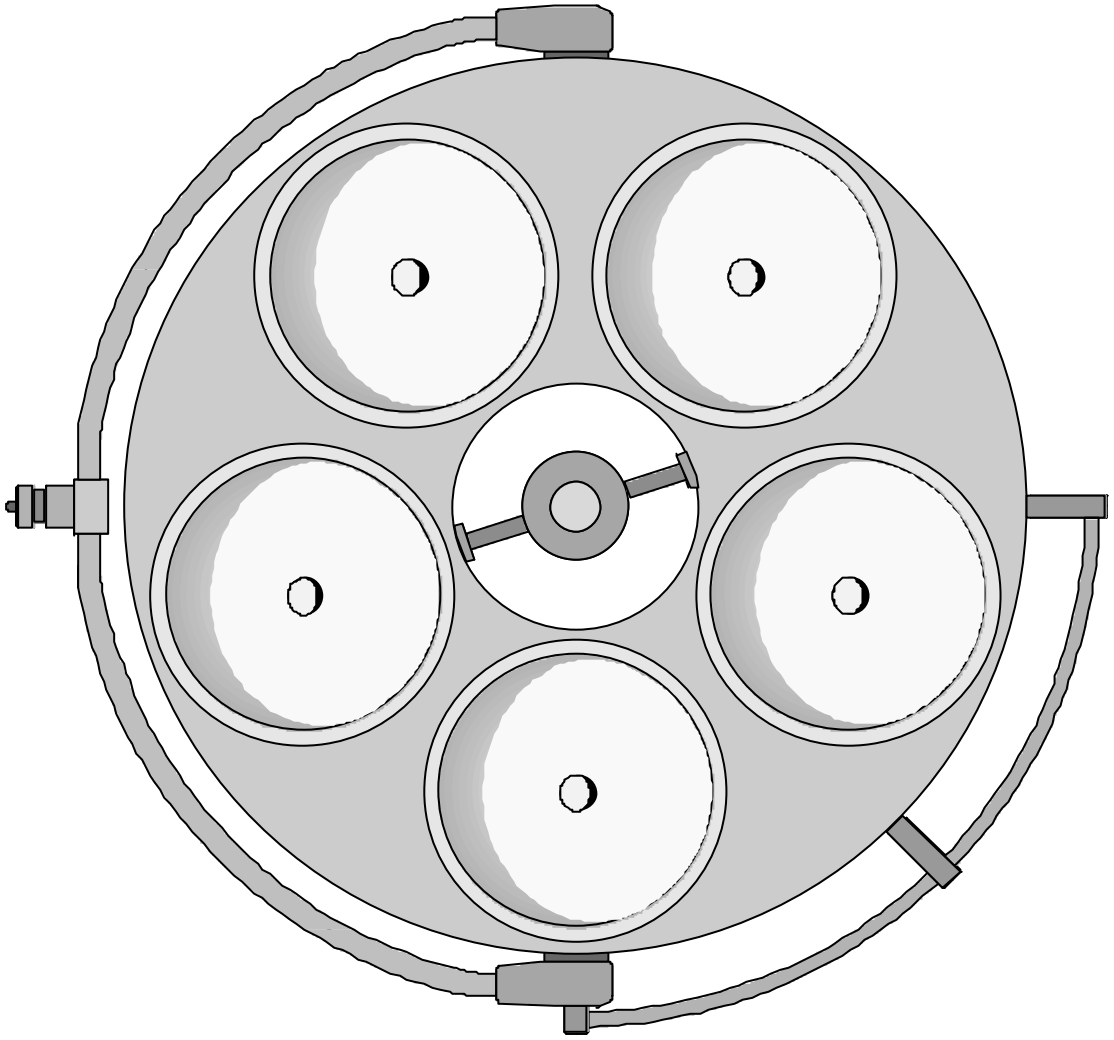
DIRECTIONS FOR USE

Quintaflex R96



Single Ceiling Lamp **Order No. 5502 3031 27**
Order No. 5502 3031 30

Ceiling Lamps - Combinations

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Dear customer!

Congratulations! You have just bought Dr. Mach's newly developed light system R96. The outstanding feature of this light system is its general colour rendition factor R_a=96 which had hitherto been unattainable for examination and surgery purposes. This means, that the colours are rendered **naturally** and in **full contrast**, with a **pleasant** light around the operating site.

In particular, the differing red shades in the operating field can be recognised with accuracy. For the doctor, this means considerably improved **recognition of detail features in the operating site**.

The light system R96 uses newly computer-optimised cold light filter which **minimise unwanted heat congestion in the head and reduce the radiation of heat onto the illuminated operating site**.

With this lighting system you profit from a whole range of new developments, based on 50 years of experience in the production of operating and doctor's lights.

Please read the safety instructions and product description carefully before working with these lights for the first time.

Please follow the separate mounting instructions for ceiling- and wall-mounted lamps, and for fitting the stand foot and pipe.

1. Safety instructions

Please pay attention to the directions for use when handling the lamp.

Attention:

This device is not suitable for use in hazardous locations.
The lamp is classified as a Group 1 device according to the regulations for EEMP.

Repairs to the lamp and special installation work on the reflector or plug-in socket should only be carried out by ourselves or a company expressly authorised by ourselves.

The manufacturer is only responsible for the safety of the lamp if repairs and alterations have been carried out by themselves or a company who can guarantee that the safety regulations have been observed.

The manufacturer is not liable for personal or material damages if the lamp is misappropriately or incorrectly operated or misused.

Make sure that the lamp is in perfect working order before use.

2. Operating the lamp Quintaflex R96

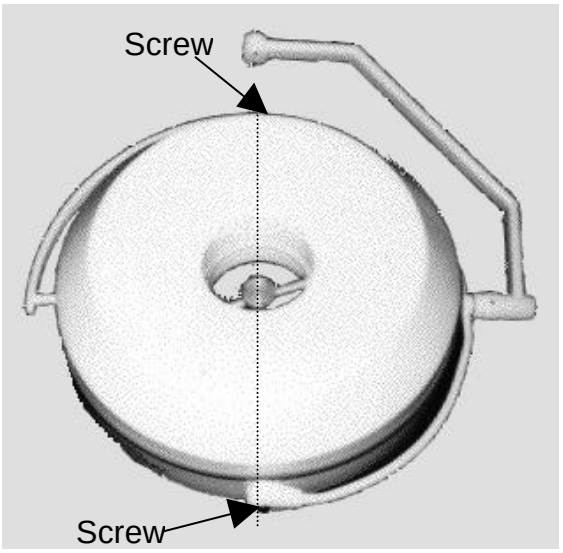
2.1 Checking the lamp Quintaflex R96 with light intensity control

The lamp Quintaflex is optionally equipped with the function of electronic light intensity control. You can adjust the light intensity at the key pad on the cardan bow.

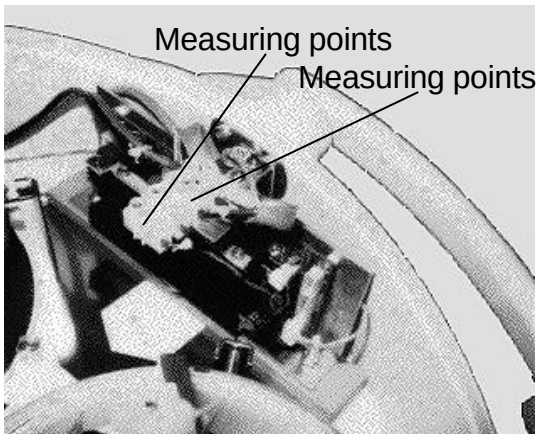
♦ Voltage measurement and setting

Before using the OT-lamps, a voltage measurement and, if necessary, a voltage setting has to be done. Only in this way a perfect functioning can be ensured.
If the location of the lamp is changed, the voltage measurement and setting must be repeated.

♦ Voltage measurement at the halogen bulbs



To measure the voltage proceed as follows:
Mount the lamp to the ceiling or wall attachment.
Switch on the lamp.
In order to make the measurement, remove the cover.
The cover is fixed with two screws, as shown in the figure. Loosen the two screws, remove them and take off the cover.

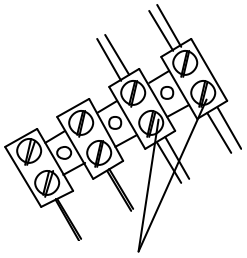


The measuring points for checking the voltage are in the same position at all Quintaflex-lamps.
The measuring points are shown in the figure.

At measuring points **1 + 2** measure the voltage applied at the halogen bulbs. **The lamp is set to the maximum light intensity**.

The AC or DC voltage depends on the external power supply.
Rated voltage 22,8 – 23,8V.

♦ Voltage setting at the halogen bulbs



Measuring points

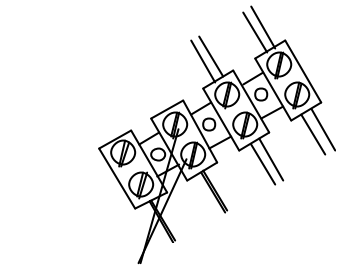
If the voltage measured is too high or too low, the value must be adjusted at the power supply.
The setting at the transformer is made by reconnecting the wires on the secondary side.

♦ Voltage measurement at the control board

Please check, whether the power supply is supplying AC or DC.

Voltage measurement at DC
Pay attention to the polarisation during the installation.
If the light intensity control does not function as desired, the PLUS- and MINUS-pole at the power supply have to be changed.

Voltage measurement at AC
For installation at AC proceed as described below:



Measuring points 3+4

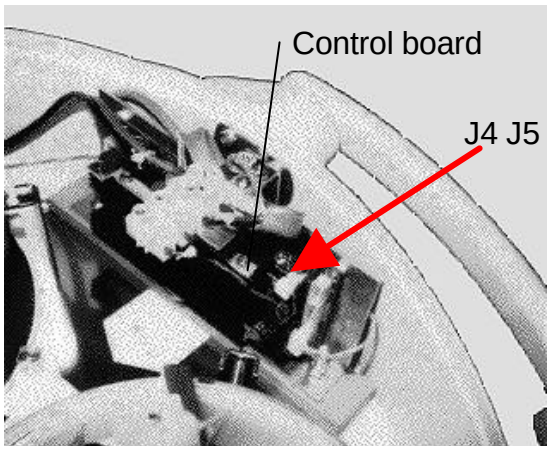
- **Preparation**

The lamp is already switched on. Set the lamp to the **lowest light intensity**.

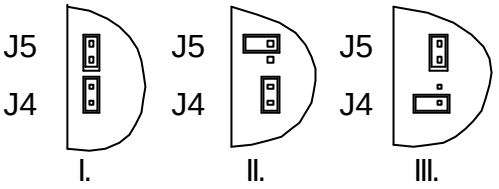
- **Measurement**

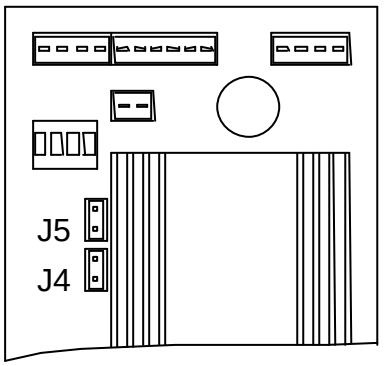
Measure the voltage at measuring points **3 + 4**. The voltage must be less than 40V DC.
If this value is exceeded, reset it as described below:

♦ Voltage setting at the control board



Switch the lamp off.
The position of the control board is shown in the figure.
Adjust the standard setting by changing the jumpers (see arrow).
Three settings enable you to ideally set your lamp system (J4 and J5).



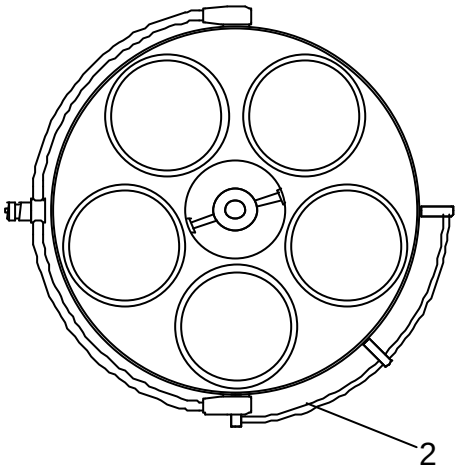


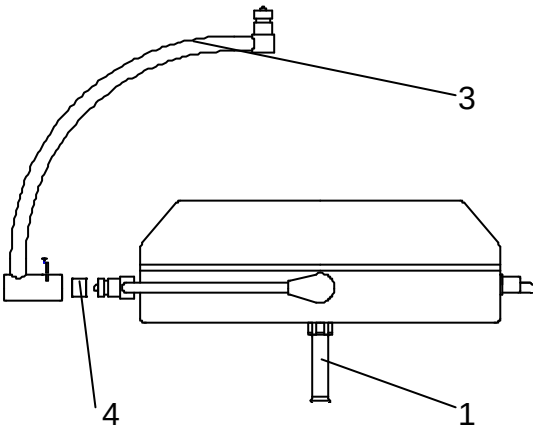
Take off one jumper and put it into position as shown in figure II. or III.

Switch on the lamp. Set the lamp to the **lowest light intensity**.
Repeat the voltage measurement at measuring points **3 + 4**.
If the voltage is less than 40V DC, keep the chosen setting.

If you measure a voltage in excess of 40V DC, switch off the lamp.
Replace the first jumper to the initial position.
Take off the second jumper and place it back on one of the two pins.

Switch on the lamp again. Finally repeat the voltage measurement. The voltage is now adjusted.
Close the lamp by replacing the cover.





2.2 ON/OFF switch

There are no ON/OFF switches on the lamp head.

The customer must provide a **two-pole ON/OFF switch**.

2.3 Positioning

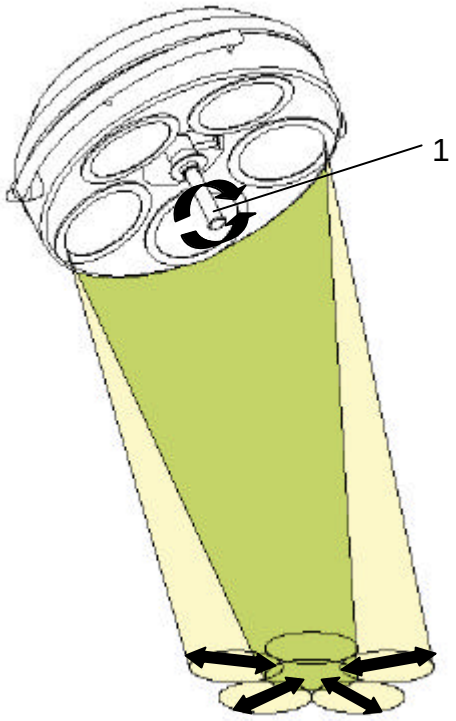
For positioning use sterilizable handle **1**.
Handle rail **2** is used for adjusting the lights from the outside.

The cardan bow **3** is used for convenient, fully cardanic adjustment of the lamp.

In case of low room heights the lamp is delivered with a central spring arm. The spring arm has only one joint.

The coupling for the bow of the lamp body is fitted with a needle bearing. The inner ring **4** of this needle bearing has already been pushed on the axis of the lamp bow.

Remark:
The instructions mentioned above refer to ceiling and wall models.

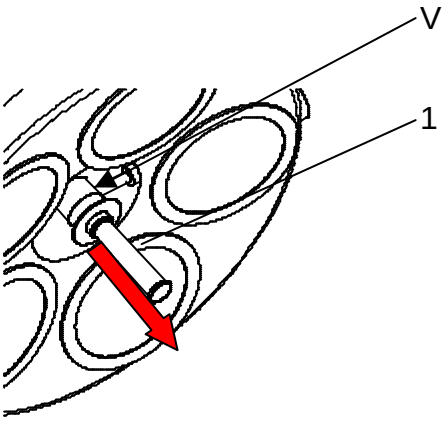


2.4 Light field adjustment (merging of light fields)

The lamps Quintaflex R96 are equipped with the function of light field realignment.
That means, you can merge the separated light fields to one spot as shown in the figure.

To activate the light field realignment turn sterilizable handle **1**.

3. Cleaning



3.1 Sterilizable handle

At delivery the lamp is equipped with the **handle sleeve 1**. The handle sleeve is removable and sterilisable. Before using the first time and before every use the handle sleeve must be cleaned, disinfected and sterilised.

The handle sleeve must be removed for sterilisation:

- To remove press the **lock V** and pull off the sterilisable handle sleeve **1** while keeping the lock pressed.
- To attach, push on and slightly twist the handle until the **lock V** engages securely.

Handles often become unsterile during an OP; therefore always keep additional handles available for exchange.

Cleaning / disinfection and sterilisation

Basics
Efficient cleaning / disinfection is an essential requirement for effective sterilisation of the handle.
Within the scope of responsibility for the sterility of the products it should be noted that only sufficiently validated equipment and product specific processes are used for cleaning / disinfection and that the validated parameters are complied with in every cycle.
In addition, the hospital / clinic hygiene regulations must be observed.

Cleaning / disinfection
Cleaning and disinfection must be carried out immediately after use.
A mechanised process (disinfector) should be used for cleaning / disinfection. The efficiency of the process used must be recognised and validated in principle (e.g. listed under disinfectants and disinfection procedures tested and recognised by Robert-Koch-Institute / DGHM).
When using other procedures (e.g. a manual procedure), proof and process efficiency in principle must be provided within the scope of validation.
Proof in principle of the suitability of the handles for efficient cleaning / disinfection was provided using a cyclic cleaning system (Netsch-Bellmed T-600-IUDT/AN, programme 2 for small parts; code B).

It is not allowed to use agents / disinfectants, which contain the following substances, as these may cause changes in the material:

- High-concentration organic and inorganic acids
- Chlorinated hydrocarbons
- 2-ethoxyethanol

When cleaning / disinfecting, the following procedures must be followed:

	Process	**Time (sec.)**
Zone 1	Pre-rinse, external, cold, 10 – 15°C Washing, acidic, external 35°C Draining time Re-rinse, external approx. 80°C Draining time Re-rinse, external approx. 80°C Draining time	45 120 10 *10 *15 *15 15
Zone 2	Washing, alkaline, external, 93°C Draining time Re-rinse, external, acidic, 90°C Draining time Re-rinse, external 90°C Draining time	135 10 10 15 15 15
Zone 3	Drying, external 100 – 120°C	200
Zone 4	Drying, external 100 – 120°C	200
	Door open / close & transport (sluice discharge)	60
	Cycle time overall ca.	290 ≈ 5 minutes

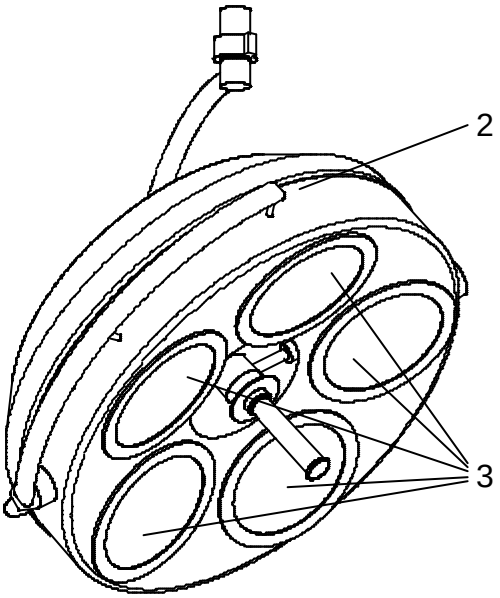
* When occupying the disinfection zone (washing zone 2), the re-rinse and draining times will depend on the respective objects being washed therein!

Sterilisation
Only previously cleaned and disinfected handles may be sterilised.
The handles are placed in a suitable sterilisation pack (one-way sterilisation pack, e.g. foil / paper sterilisation bags, single or double pack) in accordance with DIN EN 868 / ISO 11607 for steam sterilisation and then sterilised.
Use only the sterilisation procedure listed below for sterilisation. Other sterilisation procedures (e.g. ethylene oxide, formaldehyde and low-temperature plasma sterilisation) are not permissible.

Steam sterilisation procedure
Validated in accordance with DIN EN 554/ISO 11134
Maximum sterilisation temperature 134°C

Proof in principle of the handles' suitability for effective sterilisation was provided using a fractional vacuum process (Euroselectomat 666 by MMM Münchner Medizin Mechanik GmbH, sterilising temperature 134°C, holding time 7 min.)

Inspection / durability
The handles should be inspected for damage and changed before re-use, if required.
The handles may be cleaned / disinfected, sterilised and re-used for a maximum of 1000 times. If the handles are re-used more than 1000 times, then this will be the responsibility of the hospital / clinic.



3.2 Lamp head, splinter protection disk

The lamp head **2** has a high quality surface, which can be cleaned with conventional cleaning agents.

The splinter protection disks **3** are made of a high quality plastic. Pay attention to the following during cleaning:

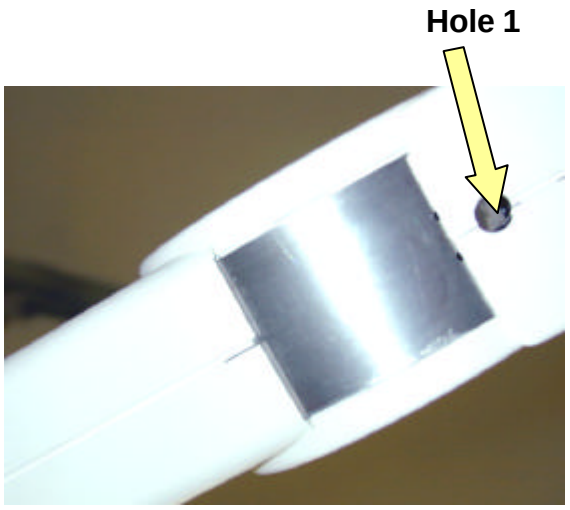
- Wipe the splinter protection disks **3** always with a wet cloth. Do not wipe dry!
- Only use disinfectant with **less than 20% alcohol**.

After cleaning wipe the splinter protection disks **3** with an antistatic, non-fluffy cloth.

Alc. £ 20 %

4. Maintenance

The lamp has been designed and built so that regular maintenance intervals are not necessary.
In order to keep the system easy running throughout its life span, we recommend that the hinges be greased once a year with an acid-free grease.

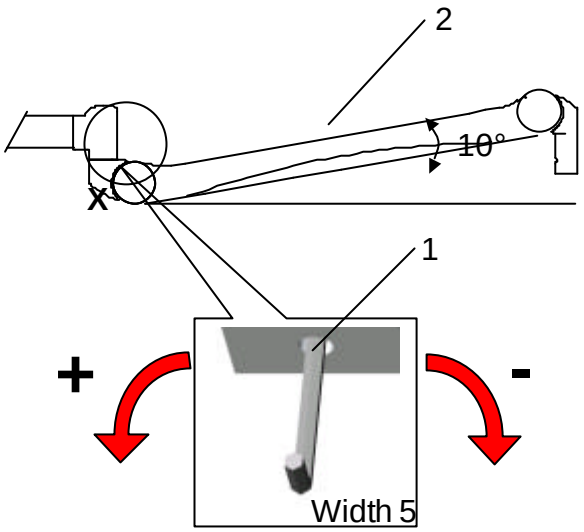


4.1 Adjustments at the ceiling attachment

♦ Adjusting the spring arm

Note:
Maximum additional load at spring arms: Spring arms are equipped with different springs to compensate the lamp / device weight.

To adjust the spring force make sure that the spring arm with the lamp / device can come to rest in any desired position.

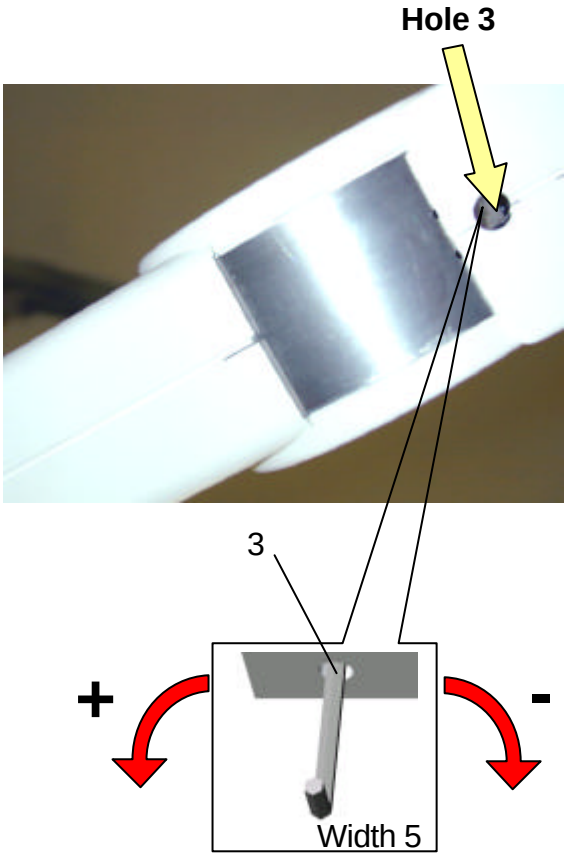


- A hole **1** is located at the position marked by detail **X**.
- Position the spring arm **2** with the lamp / device approximately 10° above horizontal.
- Insert Allan key (width 5, included in the scope of supply) into the hole **1**.

If the spring arm drops, the spring force is too low:
- Rotate the adjustment screw to the **left** (counter clockwise) in the **+** direction.

If the spring arm rises, the spring force is too high:
- Rotate the adjustment screw to the **right** (clockwise) in the **-** direction.

If the spring arm with the lamp / device cannot come to rest in any desired position after the spring force has been adjusted, the springs must be replaced by a service technician.



♦ Adjusting the central spring arm

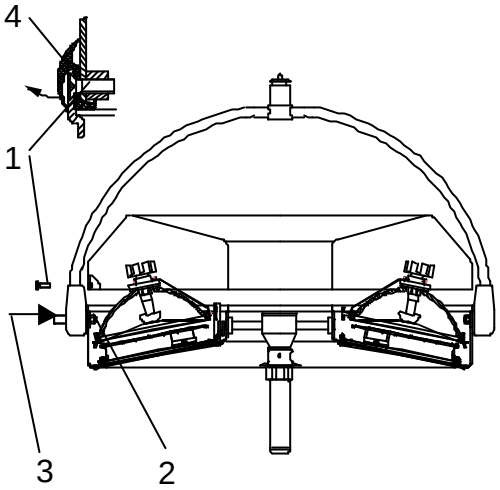
To adjust the spring force make sure that the spring arm with the lamp / device can come to rest in any desired position.

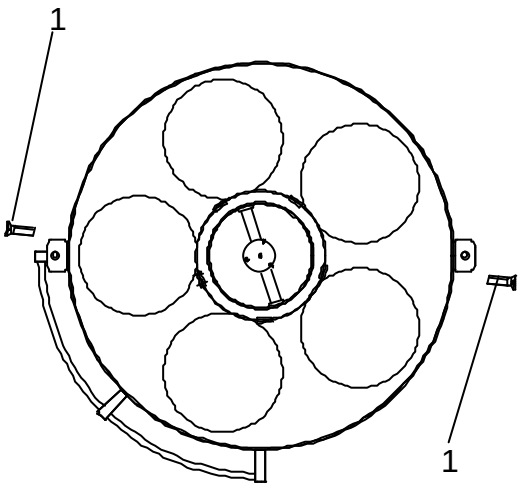
- Insert the Allan key width 5 in the hole **6**.

If the spring arm drops, the spring force is too low:
- Rotate the adjustment screw to the left (counter clockwise) in the **+** direction.

If the spring arm rises, the spring force is too high:
- Rotate the adjustment screw to the right (clockwise) in the **-** direction.

If the spring arm with the lamp / device cannot come to rest in any desired position after the spring force has been adjusted, the springs must be replaced by a service technician.



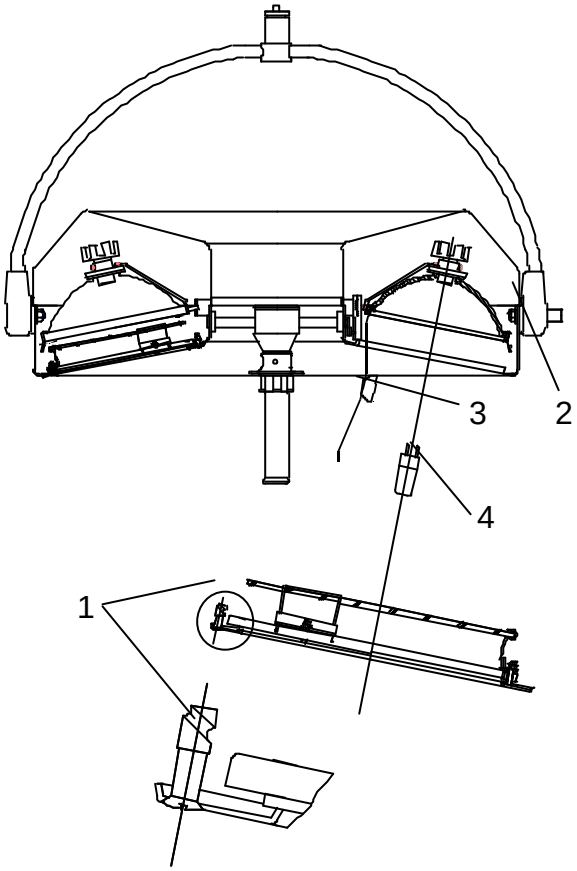


4.2 Adjustments at the lamp head

♦ Adjusting the lamp bow

For adjusting the lamp bow proceed as follows:

- Turn off the lamp.
- Loosen the countersunk screws **1** (covered by seal **4**) using a cross screw driver and carefully lift the upper housing part off the seal.
- Screw the nuts **2** on both sides a little tighter using an open-ended or ring wrench SW14, or loosen these nuts while at the same time holding the screw slot **3** in each case with a screw driver.
- Once the adjustment has been made, place seal **4** correctly on the housing lower part.
- Replace the upper part of the lamp housing, so that the seal lies cleanly around the circumference.
- Using a round object (drawing pin or small screw driver), lift the seal and lower the lamp housing upper part until it sits evenly around the whole circumference.
- Tighten using the countersunk screws **1**.
- Press into place seal **4** where widened.



4.3 Changing of spare parts

4.3.1 Changing the halogen bulbs

Dr. Mach uses special halogen bulbs as illuminants.

Only original Dr. Mach replacement bulbs may be used.
The use of other bulbs can lead to a considerable reduction of the light power and increase in the thermal load.

To change the halogen bulbs proceed as follows:

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Press outward security clip **2** and turn shade-holder **3** down.
- Carefully remove the halogen bulb **4** (22,8-24V/ 50W) from its socket, change and replace.
- Replace shadeholder and the disk bearer onto the bottom part of the lamp housing and rotate the quick-release fasteners **1** clockwise.

Do not touch the halogen bulb with naked hands.
Remove stains with a clean cloth and alcohol, since otherwise these can burn into the glass and lead to early failures.

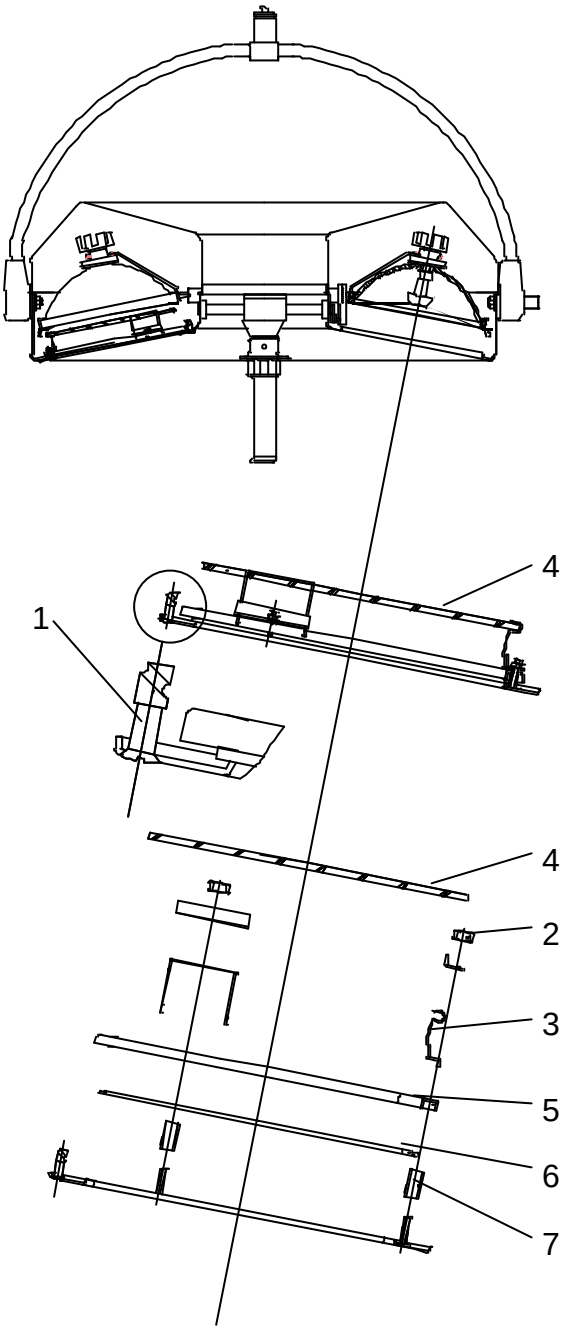
Remark:
The halogen bulbs have a service life of approx. 1000 hours without any deterioration in their luminosity.

If after approx. ½ year of average use of eight hours daily one of the halogen bulbs should fail, we recommend that the whole set should be replaced.

4.3.2 Changing the fuses

The necessary fuses are provided by the customer.

Pay attention to the instructions from the local installer!



4.3.3 Changing the filter disk

The dielectric filter disk between reflector and splinter protection disk prevents a damaging heating of the illuminated area.

The lamp may not be used without this filter.

For changing the filter disk proceed as follows:

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Slightly loosen nuts **2**, carefully bend the retaining springs **3** apart, change and replace the filter disk **4**.
  Only use filter disks which have been cleaned accordingly.

4.3.4 Changing the splinter protection disk

In case you notice a reduced light quality because of a dull splinter protection disk, it may be necessary to change the disk.

To change the splinter protection disk proceed as follows:

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Remove filter disk **4** as described at point 4.3.3.
- Loosen the three nuts **2** M3, remove retaining spring **3** and retaining ring **5**.
- Change and replace splinter protection disk **6** and lay stay tube **7**, retaining ring and retaining spring in the correct order on the disk bearer according to the illustration.
- Place nuts **2** onto the threaded bolts according to the illustration and tighten.
- Carefully bend the retaining springs **3** apart and replace filter disk.
  Only use filter disks which have been cleaned accordingly.

- Replace disk bearer and fasten by turning the three quick-release fasteners **1**.

5. Data

5.1 Technical data

~	Wechselstrom		alternating current
	Nennspannung	22,8V	rated voltage
	Nennstrom	10,96A	rated current
Hz	Hertz-Frequenz	50/60Hz	frequency Hertz
	Sicherung		fuse
	Schutzgrad	Typ"B"	class of protection

5.2 Environmental conditions

Operation

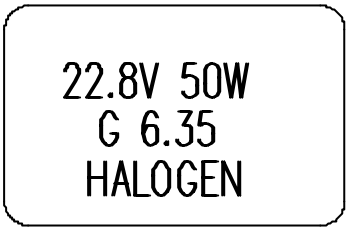
	Min.	**Max.**
Temperature	+10°C	+40°C
Relative atmospheric humidity	30%	75%
Air pressure	700 hPa	1060 hPa

Transport / Storage

	Min.	**Max.**
Temperature	-10°C	+50°C
Relative atmospheric humidity	20%	90%
Air pressure	700 hPa	1060 hPa

6. Marking

6.1 Specification of bulb



voltage, power

socket

mode of operation

6.2 CE-mark

CE

The products Quintaflex R96 comply to the standards 93/42/EEC for medical products of the European Community's Council.

7. Disposal

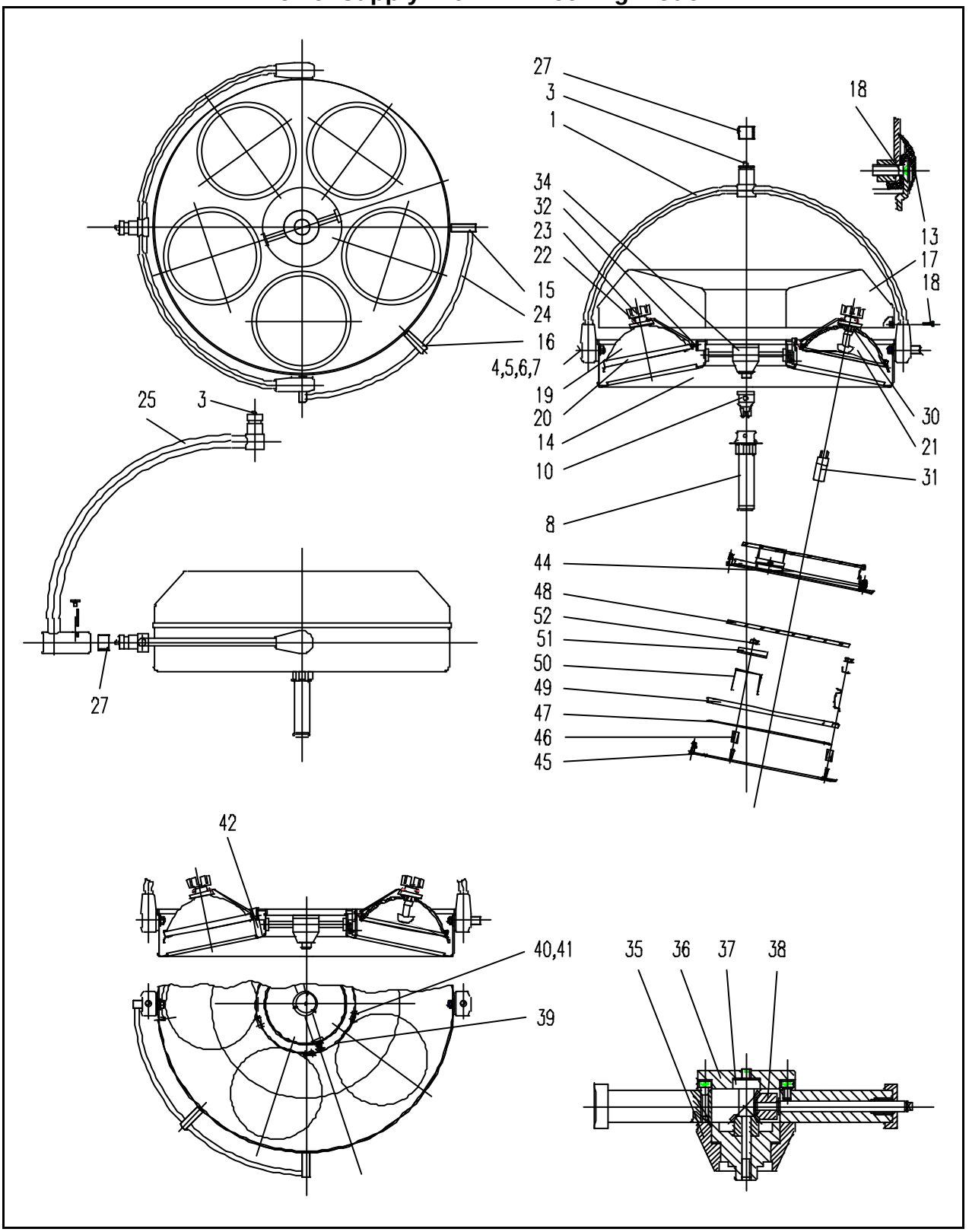
The OT-lamp Quintaflex R96 does not contain any danger goods.
The components of the OT-lamp should be properly disposed at the end of their shelf life.
Make sure that the materials are separated accordingly.

For disposal proceed as follows:

- PC-boards should be submitted to an appropriate recycling.
- The rest of the components should be disposed according to the contained materials.

8.Spare parts

Power supply with 24V – ceiling model



9.Spare part list

Item	Qty.	Name	EDVNO	Remarks
01	1	Lamp bow, complete	25100001	
02				
03	2	Sliding contact - connector	07102001	1x in 1 and 25 or 26
04	1	Bolt	22080203	
05	2	Corrugated washer	65542002	
06	2	Pressure washer	07011204	
07	2	Hexagonal nut M10x1 DIN 439	67900001	
08	1	Sterilizable handle sleeve	21150002	
09				
10	1	Handle coupling	23052001	
11				
12				
13	1	Seal	25000201	
14	1	Housing lower part	25012003	
15	2	Bolt, complete	23082202	
16				
17	1	Housing upper part	25011001	
18	2	Countersunk screw for att. the housing upper part	65102005	
19	5	Reflector, complete	25060002	
20				
21	5	Glass reflector	10060201	
22	5	Flange	23060208	
23	5	Cooling body	23060214	
24	1	Handle bow, complete	25040001	
25	1	Cardan bow, complete	25110001	
26				
27	1	Inner ring for needle bearing in part 25/26	23110202	
28				
29				
30	5	Socket	67320005	
31	5	Halogen bulb 22,8V/50W	67100201	
32	5	Tracer pin	25080202	
33				
34	1	Focussing gear, complete	25050001	
35	1	Housing	25050201	
36	1	Cap	25054001	
37	1	Centring disc	25053202	
38	1	Gear set	25055202	
39	5	Segment with inner contour	25080206	
40	5	Link with screw thread	25080208	
41	5	Link without screw thread	25080207	
42	5	Support	25080204	
43				
44	5	Disc bearer, complete	23160002	
45	5	Disc bearer ring with quick-release fastener	23161001	
46	15	Tubular rivet	65702003	
47	5	Splinter protection disc	23200201	
48	5	Dielectric filter disc	23250201	
49	5	Retaining ring	23160205	
50	15	Retaining spring	23160202	

51				
52	15	Nut M3 DIN 934	65332002	
53	1	Acrylic glass box for transformer 300VA	67610101	